

Claims :

1. Device for preparing plastic material, in particular, thermoplastic material, which comprises a receptacle (1) for the material to be treated, in which tools (21) are provided to act onto the material which rotate about a vertical axis (8) and are driven by a shaft (4) passing through the bottom (3) of the receptacle (1), the tools being supported by a support disc (9), and further comprising, for discharging the material from the receptacle (1), a screw (17), the housing (16) of which communicates with a discharge opening (15) of the receptacle (1), the discharge opening (15) being below the path of rotation of the tools (21) and lower than the support disc (9), and additional moving tools (12) being provided below the support disc (9) within the receptacle (1) for conveying the material into the discharge opening (15), **characterized in that** the upper inner space portion (26) of the receptacle (1), which exists above the support disc (9), communicates with a lower inner space portion (10) of the receptacle (1), being below the support disc (9) in the same receptacle (1), via a free annular gap (11) between the outer circumference of the support disc (9) and the lateral wall (2) of the receptacle (1), in which lower portion the additional moving tools (12) and the discharge opening (15) are located, a proportion of the material in the upper inner space portion (26) reaching the lower inner space portion (10) through the annular gap (11).
2. Device according to claim 1, characterized in that the additional moving tools (12) are mounted on a rotor (7), preferably on its periphery, that is connected to the shaft (4) in a manner for common rotation.
3. Device according to claim 2, characterized in that the rotor (7) is formed by a block coaxial to the shaft (4) whose superficies is closer to the axis (8) of the shaft (4) than the circumference of the support disc (9) so that an annular space (10) is formed below the support disc (9) which communicates freely with the annular gap (11) and in which the additional moving tools (12) will rotate.
4. Device according to claim 2 or 3, characterized in that the additional moving tools (12) are formed by impact tools mounted pivotally about vertical axes on the rotor (7) in the region of the periphery of the rotor (7).
5. Device according to claim 4, characterized in that the additional moving tools (12) are pivotal about vertical bolts (13) which engage annular grooves (14) of the periphery of the rotor (7).

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6. Device according to claim 2 or 3, characterized in that the additional moving tools (12) are formed by shovels or knives mounted on the rotor (7) and, optionally, have surfaces or edges, particularly cutting edges (22), which are bent or angled outwardly in opposite direction to that of the rotation (arrow 23).
7. Device according to claim 1, 2 or 3, characterized in that the additional moving tools (12) are formed by bars mounted either on the shaft (4) or on the rotor (7).
8. Device according to claim 1, characterized in that two support discs are mounted on the shaft (4) one above the other, the lower one of which carrying the additional moving tools (12).
9. Device according to any one of claims 1 to 8, characterized in that the path of revolution of the additional moving tools (12) is at least partly at the level of the discharge opening (15) of the receptacle (1).
10. Device according to any one of claims 1 to 9, characterized in that a plurality of sets of additional moving tools (12) are provided one above the other and distributed in peripheral direction of the receptacle (1).
11. Device according to any one of claims 1 to 10, characterized in that the width of the free annular gap (11), when measured in radial direction of the shaft (4), amounts to 20 to 150 mm, preferably 20 to 100 mm.
12. Device according to any one of claims 1 to 11, characterized in that the housing (16) of the screw (17) is connected tangentially to the receptacle (1) so that the discharge opening (15) lies on the superficies of the housing (16).
13. Method for preparing plastic material, in particular, thermoplastic material, by means of tools rotating about a vertical axis in a receptacle, the material being discharged from the receptacle by a screw, **characterized in that** the material is continuously treated in two successive steps in the same receptacle by means of two sets of tools arranged one above the other, the material being pre-comminuted and/or pre-heated and/or pre-dried and/or pre-mixed in the first step carried out in the upper inner space portion of the receptacle by the upper set of tools, and being then introduced into the lower inner space portion of the same receptacle, wherein the same treatment of the material is effected in the second step carried out by the lower set of tools, but less

intensively than in the first step, the material being supplied to the screw by the tools of the second step.

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